DOCUMENT RESUME

ED 038 515 VT 010 677

TITLE	Building Custodian; A Suggested Guide for a Training Course.
INSTITUTION	Office of Education (DHEW), Washington, D.C. Bureau of Adult, Vocational, and Library Programs.
REPORT NO	OE-87038
PUB DATE	69
NOTE	30p.
AVAILABLE FROM	Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (FS5.287:87038, $.35)
EDRS PRICE	EDRS Price MF-$0.25 HC Not Available from EDRS.
DESCRIPTORS	Bibliographies, *Curriculum Guides, *Custodian Training, Glossaries, *Occupational Information, *Teaching Guides

ABSTRACT

This training guide can be used to plan and develop a training course for persons who are interested in becoming building custodians. The outline was prepared by vocational education specialists for the Division of Manpower Development and Training and focuses on school custodians but can also be used for custodial services in public buildings, hospitals, colleges, stores, factories, and office buildings. An outline for 60 hours of instruction is divided into nine units, covering general housekeeping, sanitation, operation and maintenance of heating-ventilating systems, maintenance of buildings and grounds, human relations, management of supplies and equipment, safety, personnel, and security and protective measures. Information is included for the teacher on planning the lesson, training facility considerations, and criteria for evaluating trainee readiness for employment. A glossary, bibliography, sample work schedules and lesson plan, and a suggested list of equipment, tools, and supplies are appended. (BC)

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building custodian

a suggested guide for a training course

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ED038515

OE–87038

BUILDING CUSTODIAN

(D.O.T. Occupational Code 382.884)

A Suggested Guide for a Training Course

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
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Grant Venn, *Associate Commissioner*

Manpower Development and Training Program

GPO

Superintendent of Documents Catalog No. FS 5.287: 87038

U.S. GOVERNMENT PRINTING OFFICE
WASHINGTON : 1969

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402 - Price 35 cents

Foreword

In recent years the economy of this Nation has been growing at a rapid rate. One aspect of this growth is in evidence in the building construction business. New school buildings, apartment houses, and office buildings are being erected at an unprecedented rate. Each new building represents a substantial investment. Maintenance, repairs, and cleaning services which prolong the period of building use must be provided to protect this investment. Competent building custodians are needed to service these buildings.

This guide has been prepared to assist administrators, supervisors, and teachers in developing content for courses to be used in preparing persons for this occupation.

It was prepared for the Division of Manpower Development and Training, Howard A. Matthews, Director. Recognition is given to Dr. Carl Schaefer, Chairman, Vocational-Technical Education Department (Rutgers), and to Benjamin Shapiro, Director, Curriculum Laboratory (Rutgers), for directing this project and supervising the development of content. John F. Kelly, Supervisor, Custodial Services, Board of Education, Newark, N.J., and an instructor in the evening school, Essex County Vocational and Technical High Schools; and Raymond Pearson, an instructor in Salem County Technical Institute, Pedricktown, N.J., compiled the technical content.

The guide provides an outline for 60 hours of instruction divided among nine units. The sequence of instructional material and the hours assigned are only suggestions. Both time and content may be changed to better meet local needs.

A suggested list of equipment, materials, supplies, reference books, and a glossary of terms have been included for reference in organizing the course. The assistance of local advisory groups should be sought for guidance in selecting equipment which will serve best the local conditions.

GRANT VENN,
Associate Commissioner for
Adult, Vocational, and Library Programs.

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Background

Purpose of the Guide

This training guide has been prepared to assist in planning and developing a course of training for persons who are capable and desirous of becoming building custodians.

While the outline in this guide emphasizes the work of the school custodian, much of the suggested content can be applied to custodial services in other public buildings, hospitals, colleges, stores, factories, and office buildings.

The course objectives are to:

Develop an understanding of the responsibility placed upon custodians as service employees assigned the job of providing healthful and comfortable quarters for the occupants of the building.

Develop a knowledge of and some skills in the use of modern equipment and materials, and in providing sanitary and safe conditions in the maintenance of the buildings.

Create a desire for self-improvement through learning the technical information related to the various aspects of the custodial service.

Develop an acceptable level of skill in the use of the equipment, tools, and supplies necessary for carrying out the responsibility assigned to a building custodian.

Job Description

The size of the building to be serviced will determine the specific duties performed by the custodial staff. In small buildings practically all the work is performed by the custodian himself. The larger the building, the more assistance will be needed, and the more work assignments will become specialized. In general, the work the custodian performs will include the following:

Keeps public parts of building in clean, orderly condition and good state of repair.

Operates furnaces and boilers to provide heat and hot water.

Sweeps, mops, and scrubs halls, stairways, rooms, and offices.

Removes and disposes of litter and wastepaper from halls, stairways, rooms, and offices.

Makes minor repairs to defective plumbing, electric wiring, or other parts of the building.

Replaces burned out electric lamps in fixtures throughout the building.

Cleans sidewalks and driveways of snow or debris.

May issue instructions to subordinates concerning cleaning repair, and maintenance of mechanical and electrical equipment, plumbing, and structure of building.

Maintains adequate safety protection for occupants of building by directing elimination of fire or hazards, providing necessary fire-extinguishing equipment, and insuring accessibility to fire escapes.

May keep records of labor and material costs for operating buildings.

See Appendix A for information concerning suggested workloads and individual schedules of custodians.

Qualifications of Trainees

It is desirable but not essential that persons taking this course be high school graduates.

Trainees or students should be screened to ascertain their ability to use mathematics, read, write, and understand written directions. These skills are necessary for reading manufacturers' instructions, ordering supplies, checking the delivery of supplies, keeping records, and making reports in connection with their duties. In addition, it would be desirable if they were required to take the General Aptitude Test Battery, B–552, administered by the State Employment Service.

Upon completion of the course, each student will be expected to pass an examination on the subject matter covered.

All students are expected to have a strong desire to learn the material presented in the course and to qualify for employment in this type of work.

Teacher Qualifications

The person selected to teach this course should have had considerable experience in the field of custodial and maintenance services in industrial plants, schools, or other institutions. Supervisory experience would also be of value.

If the instructor has not had any experience in teaching, he should be required to take some courses in teacher education including course construction, lesson planning, and methods of presentation.

Manufacturers of equipment and supplies used in connection with the work of building custodians are usually willing to have their representatives demonstrate their products. This source of service is recommended.

Suggestions for the Organization of Instruction

The course outlined in this guide is intended to give the trainee the opportunity to develop understanding and knowledge together with sufficient skill to qualify him for employment.

Instructional periods should be held in a school, hospital, or similar institution. Using such a building as a workshop will serve the trainee as an on-the-job work laboratory. Practical work assignments could be readily carried out in the building and a suitable room could be assigned for related instruction.

Length of Course and Course Units

This course, as outlined, provides for 60 hours of instruction. It is suggested that the course material be presented over a period of 12 to 15 weeks for 4 or 5 hours per week. The number of weeks and hours per week may be changed to best meet the needs of the local community. To suggest relative emphasis, the course units are listed together with titles and the number of hours allotted to each.

Unit	*Title*	*Hours*
I.	General Housekeeping	24
II.	Sanitation	4
III.	Operation and Maintenance of Heating-Ventilating System	15
IV.	Maintenance of Buildings and Grounds	6
V.	Human Relations	2
VI.	Management of Supplies and Equipment	3
VII.	Safety	3
VIII.	Personnel	1
IX.	Security and Protective Measures	2
		60

Course Units

Unit I

GENERAL HOUSEKEEPING

Training Time

Class and practical work assignments, 24 hours.

Objectives

To orient trainees to the nature and scope of the building custodian's responsibilities.

To acquire understanding of the variety of activities which comprise general housekeeping and provide opportunities to develop skills in these operations.

Unit Outline

A. Responsibilities of custodian
   1. Safety and health standards
      a. Cleanliness
      b. Neatness
   2. Proper heating and ventilating
   3. Economic use of supplies and utilities
   4. Maintenance of lawns, trees, and shrubbery
   5. Prompt removal of ice and snow
   6. Maintenance of good relationships with members of his staff, teachers, students, and supervisors
   7. Inspection of work performed by outside contractors to determine that it meets all requirements

B. Sweeping
   1. Equipment
      a. Broom
      b. Vacuum cleaner
      c. Dust mop
      d. Other
   2. Procedures

C. Dusting ceilings, floors, furniture, and walls
   1. Equipment
      a. Vacuum cleaner (with proper attachments)
      b. Treated dust mop
      c. Dustcloths
      d. Feather dusters
      e. Other
   2. Procedures

D. Polishing and waxing (wax and special liquid polish)
   1. Metal surfaces
      a. Door accessories
      b. Toilet fixtures
      c. Other
   2. Wood surfaces
      a. Desks
      b. Bookcases
      c. Other wood furniture

E. Mopping
   1. Damp mopping
      a. Equipment
      b. Detergents
      c. Special cleaning agents
   2. Dry mopping
      a. Treated types
      b. Untreated types

F. Scrubbing
   1. Scrubbing machine
      a. Types of abrasive pads
      b. Cleaning agents
   2. Scrubbing brushes—sizes and types
   3. Rinsing procedures (clear warm water)
   4. Excess water removal
      a. Vacuum (special type)
      b. Squeegee and pick-up pan
      c. Stranded mop and wringer

G. Washing (with proper cleaning agents)
   1. Windows
   2. Walls (marks, grime, etc.)
   3. Glass
   4. Miscellaneous

H. Work schedules
   1. Daily work schedules broken down into hourly assignments for custodial personnel
   2. Checklist of jobs completed or explanations of uncompleted jobs
   3. Evaluations of work completed by custodial personnel

I. Safety practices

Suggested Practical Work Assignments

Sweep tile floors in corridors and library.
Sweep finished wood floors.
Sweep unfinished wood or concrete floors.
Sweep floors in toilet rooms.
Sweep stairways.
Dust offices and office furniture.
Dust walls in corridors.
Dust restrooms and cafeterias.
Dust bookcases and shelves in library and stockrooms.
Polish office furniture and equipment.
Polish metal fixtures in toilet rooms.
Polish doorknobs, kick plates, etc.
Mop (wet) cafeterias.
Mop toilet rooms.
Mop corridors and stairways.
Mop (dry) finished floors.
Wax office floors.
Wax tile floors in corridors and restrooms.
Scrub terrazzo floors in corridors.
Scrub lavatory rooms.
Scrub stairways.
Scrub unfinished floors in storeroom.
Wash furniture and cabinets in library.
Wash drinking fountains and washbasins.
Wash glass in doors and showcases.
Wash tables in cafeteria.
Wash tiled walls in toilet rooms.

References

Brainard, *Handbook for School Custodians.*
Ohio State University. *Custodial Training.*

Unit II

SANITATION

Training Time

Class and practical work assignments, 4 hours.

Objectives

To develop an understanding of methods employed to provide sanitary conditions in public toilet and shower rooms.

To develop a knowledge of materials and their uses in controlling pests, disposal of garbage, and removal of vomited material.

To develop skills in the methods employed, use of tools, equipment, and materials in providing hygienic environment in the building.

Unit Outline

A. Cleaning and maintaining all toilet rooms, shower rooms, urinals, toilet bowls, drinking fountains, and wash sinks—supplying toilets and washrooms with toilet paper, soap, and towels
B. Pest control
   1. Extermination of flies, silverfish, water bugs, roaches, etc., by approved methods
      a. Areas that have to be treated frequently should be treated by different materials from time to time, as some pests acquire immunity to a specific insecticide
      b. Extermination materials used in cooking rooms, cafeterias, and other eating areas should be used only as approved by the Food and Drug Administration
   2. Extermination of rodents
   3. Disposal of garbage
   4. Immediate removal of vomited material and damp mopping area with disinfectant solution

Suggested Practical Work Assignments

Clean all toilet fixtures, removing all rust and other stains.
Check flushing equipment.
Check on need for pest extermination in kitchens, cafeterias, and other eating areas.
Apply extermination material as directed.
Set up rodent exterminating devices in likely places.
Dispose of all garbage, using methods of cartage or incineration.
Supply toilet rooms and restrooms with toilet tissue, soap, and towels.

Reference

Brainard, *Handbook for School Custodians.*

Unit III

OPERATION AND MAINTENANCE OF HEATING-VENTILATING SYSTEM

Training Time

Class and practical work assignments, 15 hours.

Objectives

To develop knowledge and understanding of the operation and servicing of heating and ventilating equipment used in buildings.

To acquire skills in servicing heating and ventilating equipment and in using supplies for this equipment.

Unit Outline

A. Firing of boilers to maintain heat as required by health authorities and State code

B. Methods and combustion
   1. Anthracite and rice coal generally used in connection with special grates and forced draft
   2. Fuel oil
      a. #2 oil is more often used in homes and small buildings
      b. #4 is used in many buildings that are operated for only a few hours daily
      c. #6 oil is cheaper, but has to be preheated
   3. Addition of fuel-oil solvent to prevent sludge formation
   4. Avoiding over or under heating of the various areas
   5. Frequent check of fuel-oil strainers

C. Heat distribution methods
   1. Direct heating by steam radiation
   2. Direct heating by hot water radiation
   3. Indirect heating by hot air
   4. Heating units, either hot water or steam, supplemented by fan for distribution in room
   5. Radiant heat by steam or hot water
   6. Heating by electricity

D. Common types of boilers
   1. Types and method of operation
      a. Stationary, brick set, horizontal return tubular (H.R.T.)
      b. Locomotive type
      c. Scotch marine
      d. Water tube
      e. Cast iron sectional
   2. Maintenance and care—follow manufacturers' recommendations

E. Operation and maintenance of grates
   1. Types and method of operation
      a. Stationary
      b. Dumping
      c. Shaking
      d. Stoker
   2. Maintenance and care—inspect for cracked or broken grates and order needed replacements

F. Operation and maintenance of controls
   1. Types and method of operation
      a. Aquastats
      b. Thermostats
      c. Pressuretrols
      d. Mercury controls
      e. High and low water controls
   2. Maintenance—dust and clean as needed

G. Maintenance of boiler tubes (cleaning)
   1. Vacuum cleaner
   2. Brush and scraper
   3. Air pressure

H. Draft controls and dampers
   1. Types and method of operation
      a. Main stack damper
      b. Check damper
      c. Flue damper
   2. Maintenance—inspect and order repairs as needed

I. Ventilating system
   1. Operating principles
      a. Window regulation
      b. Fresh air in connection with indirect heating system
      c. Fresh air through heating units
      d. Ventilating fans to remove foul air from rooms
   2. Maintenance
      a. Duct system
      b. Fan system

J. Preparing boilers for heating season
   1. Operating principles
      a. Testing for leaking tubes
      b. Removal of scale and corrosion
      c. Checking fusible plug for replacement if needed
      d. Filling boiler to proper level
      e. Hydrostatic tests
   2. Maintenance
      a. Test for leaking tubes
      b. Order repair for leaking tubes
      c. Remove accumulated scale and corrosion
      d. Check and replace fusible plug if necessary
      e. Fill boiler to proper level
      f. Apply hydrostatic tests

K. Boiler care after heating season
   1. Inspection
      a. Interior and exterior parts of boiler
      b. Firebox, combustion chamber, flues, and breechings
      c. Record of all needed repairs
   2. Cleaning
      a. Interior and exterior parts of boiler
      b. Firebox, combustion chamber, flues, and breechings

L. Blowing down boilers
   1. Surface blowdown, generally located at the waterline, to throw off any oil or grease floating on top of the water
   2. Low blowdown, at the lowest part of the boiler, to remove any rust, scale, or corrosion
   3. Frequency
      a. Follow manufacturers' recommendations
      b. At least every 24 hours

M. Codes and licensing
   1. State and local licensing requirements of boiler operators (custodial)
   2. State and local safety codes for boiler operation
   3. A.S.M.E. Code for Low Pressure Boilers

Suggested Practical Assignments

Operate boilers within approved limits.
Operate boilers with fuels supplied.
Apply fuel-oil solvent according to directions.
Clean oil strainers.
Check on heating requirements.
Clean boiler tubes using brush and scraper.
Check all dampers and controls to make sure these controls are in safe and efficient operating condition.
Operate ventilating equipment as needed or directed.
Clean and inspect all boilers after the heating season according to approved methods.
Inspect and prepare boilers for the heating season, check safety valves, clean out any scale or corrosion, and check fusible plug.
Blow down boilers according to approved methods.
Describe type and name of boiler in your boiler plant.
Describe type of grates and their function in the boiler plant.

Reference

American Society of Heating and Ventilating Engineers. *Heating, Ventilating, and Air Conditioning Guide.*

Unit IV

MAINTENANCE OF BUILDINGS AND GROUNDS

Training Time

Class and practical work assignments, 6 hours.

Objectives

To develop understanding and knowledge of the nature of interior and exterior maintenance problems and how they are solved.
To develop skills in the maintenance of the building, equipment, and grounds.

Unit Outline

A. Maintenance assignments
   1. To custodial personnel
   2. To maintenance department
   3. To outside contractor
   4. Scheduled oiling and greasing
   5. Cleaning of boilers, water towers, and fan units
   6. Scheduled fan belt and unit filter replacements

B. Interior maintenance
   1. Refinishing and care of the following floors
      a. Wood
      b. Tile
      c. Concrete
      d. Terrazzo
   2. Proper cleaning of walls and woodwork
   3. Care of carpets and rugs
   4. High cleaning
   5. Lighting maintenance
   6. Toilet cleaning and servicing
   7. Window washing
   8. Window replacement
   9. Venetian blind cleaning and parts replacement
   10. Touchup of painted areas
   11. Elevator care
   12. Rodent control

C. Exterior maintenance
   1. Horticulture
      a. Fertilizing
      b. Grass cutting
      c. Clipping
      d. Watering
      e. Spraying of insecticides
      f. Care of grass cutting equipment

2. Asphalt maintenance
3. Fence maintenance
4. Parking lot layout
5. Pavement maintenance
6. Roof maintenance
7. Replacement of glass
8. Touchup of exterior paints

D. Mechanical maintenance
1. Air compressors
2. Air-conditioning systems
3. Automatic controls
4. Boiler maintenance
5. Data processing rooms
6. Electric batteries
7. Electric motors
8. Lubrication
9. Plumbing
   a. Leaks (water, steam)
   b. Stoppages (toilets, traps)
10. Pumps
11. Roof cooling
12. Water treatment for cooling towers

E. Maintenance standards

Suggested Practical Work Assignments

Determine where repairs or improvements are needed.
Sand and seal floors in auditorium.
Inspect outside areas: Lawns, shrubbery, trees, and walks.
Determine if repairs are needed.
Replace broken windowpanes.
Check for steam and water leaks and drain stoppages.
Grease and oil all ventilating equipment as needed.
Replace filters in heating units.
Replace electric lamps and fixtures as needed.
Repair and replace window shades as needed.

References

Baker and Peters. *School Maintenance and Operation.*

Sack. *A Complete Guide to Building and Plant Maintenance.*

U.S. Department of Health, Education, and Welfare. *School Building Maintenance Procedures.*

Unit V

HUMAN RELATIONS

Training Time

Class, 2 hours.

Objective

To develop an understanding of the principles of good human relations and some knowledge of how these principles are applied in daily association with others.

Unit Outline

A. Maintain good relations with supervisors
   1. Know how to receive and carry out orders
   2. Develop a "team" feeling in the performance of assignments

B. Maintain good relations with tenants
   1. Schedule work so as to cause least inconvenience
   2. Show a personal interest in tenants' comfort in relation to the job to be done

C. Maintain good working relations with other members of custodial staff
   1. Cultivate and place in effect real teamwork
   2. Lend a "helping hand" whenever necessary

D. Be courteous and helpful to visitors
   1. Understand value of public relations
   2. Try to develop a pleasing personality

E. Be tolerant of others
   1. Practice the Golden Rule
   2. Keep full control of your temper

F. Discuss problems with your supervisor
   1. Be able to talk and explain difficulties
   2. If you cannot find answers, after serious consideration, bring problems to the proper place
   3. Do not substitute other personnel for the supervisor

G. Accept responsibility
   1. Accept your part of the teamwork, knowing if you do not, someone else will have to do part of your job
   2. Honestly strive to accept responsibility with pride and interest

Reference

Baker and Peters. *School Maintenance and Operation.*

Unit VI

MANAGEMENT OF SUPPLIES AND EQUIPMENT

Training Time

Class and practical work assignments, 3 hours.

Objectives

To develop an understanding of the management of supplies and equipment and some knowledge of the system of inventory control.

To develop skill in operating an effective inventory control system.

Unit Outline

A. Knowledge of products to use on various jobs

B. Cost and results
   1. Know how to figure square feet and cost per 1,000 square feet on various floor and wall jobs
   2. Know the cost of various supplies

C. Storage
   1. Learn how to handle materials
   2. Get proper shelving for supplies
   3. Issue supplies so that old products are used first
   4. Use safety precautions in storage areas

D. Inventory control
   1. Learn how to keep adequate records
   2. Protect vital records
   3. Record storage considerations

E. Avoidance of waste
   1. Avoid excessive use of supplies
   2. Avoid unnecessary use of electricity
   3. Avoid unnecesary use of water
   4. Avoid improper use of gas
   5. Avoid improper care of equipment

F. Requisitions and orders
   1. Learn procedures
   2. Know the value of and be able to interpret a specification or schedule

G. Testing and evaluation of new items recieved
   1. Know the workings of the pH chart
   2. Know the difference between alkalis and acids
   3. Have a workable knowledge of materials and supplies before application
   4. Read, as much as possible, the literature on new supplies on the market

Suggested Practical Work Assignments

Receive and store all supplies.
Take inventory of custodial or office supplies.
Give report of usefulness of new products.
Evaluate costs of materials.

References

Baker and Peters. *School Maintenance and Operation.*
Ohio State University, Trade and Industrial Education Service. *Custodial Training.*
Sack. *A Complete Guide to Building and Plant Maintenance.*

Unit VII

SAFETY

Training Time

Class and practical work assignments, 3 hours.

Objectives

To develop an understanding of the problem of building safety and some knowledge of the equipment, devices, and provisions in building construction which contributes to safety.

To develop skills in servicing building adjuncts which contribute to the safe operation of the buildings.

Unit Outline

A. Fire safety
   1. Make certain that fire escapes are accessible at all times
   2. Provide and maintain types and quantities of fire extinguishers as prescribed by Fire Underwriters' Code

Types	*Used for*
Soda and acid	Wood, paper, excelsior, rags
Water foam	Oil, greases, paints
Water cartridge	Wood, paper, excelsior, rags
Carbon dioxide (CO_2)	Electrical fires
Pressurized powder	Electrical, oil, grease
Carbon tetrachloride	Electrical

   3. Follow safeguards for boiler operation closely
   4. Check fire alarm systems
   5. Keep fireroom door closed at all times

6. Never use wooden or paper containers for hot ashes
7. Store flammable liquids and materials in safety containers
8. Discourage use of flammable decorations
9. Remove paper and shop refuse from building daily, or observe other safety precautions
10. Properly ventilate storage places
11. Arrange for electrical repairs promptly
12. Use Underwriters Laboratories (UL) approved cords and equipment
13. Don't hang extension cords on nails
14. Use only the specific fuses called for in electric circuits

B. Removal of hazards
   1. Keep all passageways clear
   2. Remove snow and ice promptly

C. Be certain tools are in working order

D. Make sure that exit doors have been adjusted so they can be opened from the inside

E. Make minor repairs to equipment

F. Inspect and repair stair treads and handrails

G. Fasten down file cabinets to prevent accidents

H. Provide for safe storage of cleaning agents and disinfectants

I. Make certain unauthorized personnel are denied access to dangerous machinery and fuse boxes

J. Learn and exercise the accepted safe methods of lifting heavy objects and handling tools

K. Be sure panic bars work properly

L. Inspect wood flooring to detect protruding nails or splintered wood

M. Wear protective clothing

Suggested Practical Work Assignments

Indicate ways of escape from your building.
Operate fire extinguishers.
Check safeguards used in your plant boiler operation.
Check fire alarm systems.
Store flammable liquids and material in safety containers.
Remove paper and shop refuse from building.
Install proper size fuses.
Clear working areas of obstructions.
Remove ice and snow.
Put tools in safe working order.
Check safety condition of stair treads.
Store cleaning agents and disinfectants safely.
Check and keep panic bars in working condition.

Reference

U.S. Department of Health, Education, and Welfare. *School Building Maintenance Procedures.*

Unit VIII

PERSONNEL

Training Time

Class, 1 hour.

Objective

To develop an understanding and some knowledge of personnel practices appropriate to custodial services.

Unit Outline

A. Limiting qualifications
   1. Physical and mental fitness
   2. Training
   3. Possession of proper license

B. Method of selection
   1. By civil service examination
   2. After checking references from previous employer
   3. Following probationary period

C. Dress and personal appearance
   1. Suitable clothing and grooming
   2. Neatness and cleanliness

D. Qualities that make for success in the job
   1. Ability to interpret directions properly
   2. Ability to carry full workload
   3. Knowledge of management's policies regarding the building
   4. Pride in work
   5. Being consistently dependable
   6. Trying to improve job performance constantly
   7. Developing the ability to work without close supervision

Unit IX

SECURITY AND PROTECTIVE MEASURES

Training Time

Class and practical work assignments, 2 hours.

Objective

To develop an understanding of the problem of the protection and security of buildings and equipment and some knowledge of how to assure maximum protection.

Unit Outline

A. Turn off lights
   1. Know which lights are to be turned off and which are to be left on for security reasons
   2. Know the location of main switches and breaker boxes
   3. Have sufficient knowledge of electricity to insure safety

B. Lock doors and gates
   1. Be sure no one is locked inside of building
   2. Secure all doors and gates, checking exterior as final work procedure
   3. Make sure authorized persons have keys to the building entrance in case of fire, etc.

C. Close windows
   1. Close all windows at end of day and lock them—especially important on the first floor
   2. Check windows when a storm approaches to exclude rain and wind
   3. Inspect sash for broken glass and, if necessary, place temporary protection over broken glass
   4. Inspect sash for broken chain or sash weight ropes

D. Safeguard tools and equipment
   1. Properly clean and store tools and equipment
   2. Properly store gasoline or other flammable materials
   3. Disconnect all electric driven tools immediately after use
   4. Inspect all lead-in wires to electrical equipment for bare wiring and improper connections
   5. Ground all electrical equipment before using
   6. Turn off all equipment not necessary for evening maintenance

E. Question presence of unauthorized people in building
   1. Conduct yourself in a gentlemanly manner
   2. Ask questions and direct people to their proper destinations

F. Fire prevention measures
   1. Know the location of fire alarm boxes in the building and use them according to administrative instructions
   2. Know location of fire alarm system outside of premises
   3. Follow through on instructions relating to fire alarm drills

G. Breaking-in and vandalism
   1. Know location of emergency telephone
   2. Post proper phone numbers in a location readily available
   3. Call police and administrative personnel in accordance with instructions

Suggested Practical Work Assignments

Make sure all lights are turned off when not needed.
Lock doors and other entrances to building securely.
Close and lock windows.
Place tools and equipment in a secure place.
Role-play an incident on the handling of an unauthorized stranger in the building.
Locate on a blueprint all fire alarm boxes in the plant.
Point out on a plant blueprint the location of main switches and circuit breakers.

References

Sack. *A Complete Guide to Building and Plant Maintenance.*

Teaching the Course

Planning the Lesson

A lesson plan is an organized plan or procedure for teaching a complete lesson efficiently. Written lesson plans usually contain the following: name of the unit of training, subject of lesson, aim (or purpose) of the lesson, references, teaching aids, materials and tools needed, methods of motivating students, methods of presentation, key points, ways for students to apply the knowledge or skills developed, and tests. Two types of lesson plans in general use are the manipulative lesson plan and the related lesson plan.

The manipulative lesson plan is used by the shop instructor to teach the operations listed in the course of study. It shows in considerable detail the organization of the subject matter (operation or operations) necessary to teach the lesson. The content in the manipulative lesson plan is comprised of the steps and key points in the operation to be taught. The manipulative lesson is generally taught by the demonstration method.

The manipulative lesson plan is made up of six parts: Objective; tools, equipment, and supplies; preparation; presentation; application; and test.

The related lesson plan is used to teach the related technology listed in the course of study. It shows in considerable detail the organization of subject matter in outline form (related technology) necessary to teach the lesson. In addition, it lists the teaching aids and assignments which will be used in teaching the lesson. In related instruction a number of methods of teaching may be used. The instructor must select the particular method which he feels is suitable and most effective for presenting the material contained in the lesson.

Comparison

In most respects the related lesson plan resembles the manipulative lesson plan, both of which contain six parts. However, there are three distinct differences:

The heading of "tools, equipment, and supplies" in the manipulative plan is replaced by the heading "teaching aids" in the related plan.

The manipulative lesson generally uses the demonstration method, but in presenting the related lesson the instructor may select one of a number of methods.

Organization of content in the presentation of the manipulative lesson is comprised of steps and key points, while in the related lesson it is in outline form.

See appendix B—Sample Lesson Plan.

Training Facility Considerations

In the section, "Suggestions for the Organization of Instruction," it is proposed that a school building be used as a training facility. In this setting, the practical work assignments could readily be carried out within the building itself. An unused classroom could be used for the related instruction. A space should be assigned for the safe storage of the equipment, supplies, and tools used with this course of instruction.

Criteria for Evaluating Trainee Readiness for Employment

The criteria to serve as guides in determining whether the trainee is ready for employment should be developed from the objectives listed for the course. These objectives should indicate the specific kinds of learning expected to be accomplished by the trainee during the time he is enrolled in the course. These would include the knowledge, understanding, skills, and judgment to be developed during the progress of the course. In addition to this job-oriented learning, the development of desirable attitudes and work habits should receive considerable emphasis. The trainee is ready for job placement when he has demonstrated a reasonable degree of mastery of each unit of the course. In order to measure the acquisition of learning with some degree of accuracy, the instructor should use a variety of evaluative devices or tests. These devices may take the form of oral, written, or performance tests. In addition, evaluation of trainee progress may be carried out by the instructor observing the trainee at work on assigned tasks.

It is important to accumulate objective information concerning the progress of each trainee. Below are indicated some of the competencies which are desirable for each trainee to develop or strengthen in his preparation for employment:

Courtesy, friendliness, and tact in dealing with supervisors, fellow workers, and the general public.

Acceptable appearance—good grooming, cleanliness, neatness in dress, and sensible choice of clothing.

Good personal habits in speech, mannerisms, and methods of work.

Acceptable attitudes—calmness in disorganized situations, positive attitude toward work, cooperativeness, willingness to work with others.

A knowledge of basic building custodial services.

An understanding of the role of the building custodian.

Understanding and following instructions or directions.

The ability to work with minimum immediate supervision.

An ability to keep equipment and tools in good working order.

Skill in performing the operations and jobs which comprise custodial services.

A knowledge of and some ability in ordering, storing, issuing, and keeping records of supplies.

The ability to develop and follow a work plan or schedule.

Understanding and knowledge of basic safety precautions.

Glossary

ABRASIVES:

Most scouring powders contain some sort of abrasive of volcanic ash and are not soluble. Other abrasives include powdered pumice, steel wool, pumice stone, sandpaper, and fuller's earth.

ABSORBENTS:

Some commonly used absorbents are blotters, sand, absorbent cloths, sawdust, and calcium carbonate.

ACIDS:

Acetic acid, sometimes used in cleaning; hydrochloric, most often referred to as *muriatic acid*, used in removing stubborn stains, and also for removing cement and mortar from masonry; *oxalic acid*, used as a bleaching agent, and also to remove incrustations due to minerals from water; *sulphuric acid*, used in connection with recharging soda-acid extinguishers.

ALKALIES:

Lye, soda ash, trisodium phosphate, washing soda—used for dissolving oils and greases, and the base of many soap products.

ASPHALT:

Asphalt, asphalt tile, and mastic floors. These are termed soft-composition floors. They are fire resistant and are made of asbestos fibers, mineral pigments, and resinous binders. When warm they are very flexible, but become very brittle when cold. Asphalt floors are washed with neutral soap. Wax and buff in the same way as cork and linoleum floorings are treated.

BLEACHES:

Citric acid, lemon juice, salt, ammonia, oxalic acid, sodium peroxide, and sodium perborate.

BLOWING DOWN BOILERS:

Lower blowdown valve to run off sediment and foreign material before starting boilers in the morning. Surface blowdown, located about the waterline on side of boiler, allows for the discharge of oils and greases that may have returned to boiler with condensation.

BREECHING:

Steel duct that carries smoke and gases to smokestack.

B.T.U.:

British Thermal Unit. The quantity of heat required to raise the temperature of 1 pound of water 1° fahrenheit.

CERAMIC OR CLAY TILE:

Ceramic or clay tile is made from burned or "fired" clay, an aluminum silicate material, and is set in cement to form flooring. The unglazed tile is generally used for flooring.

CHAMOIS:

A soft leather made from the skin of a sheep or goat.

CORK TILE:

Floor tile made of cork curlings and granulated cork bits which are compressed in molds and baked. Cork composition tile, unlike true cork tile, resembles linoleum in that it has a smooth surface. Cork and linoleum floors should be washed with a neutral cleaner and rinsed with clear water to remove any soap scum. For the most part, these floors can be maintained by the use of a floor buffing machine, with a buffing pad. Cork and linoleum floors should be waxed with water-emulsion wax.

DEGREE-DAYS:

A unit used in specifying the nominal heating load in winter; 65° F. is the base used in figuring heat need, since buildings usually need heat only when the outside temperature is below 65°. For any day, the degree days can be found by subtracting the day's average outdoor temperature from 65°; the difference is the number of degree-days.

DEODORANTS:

Materials used to mask an unpleasant odor with a pleasant odor.

DETERGENTS:

Detergents are cleaning agents. They may be some type of soap—powdered, flake, or liquid; there are also many nonsoap detergents, commonly referred to as synthetic detergents.

DISINFECTANTS:

Medical authorities claim that soap and water are the best disinfectant. Disinfectants are used with some effect in the removal of germs and bacteria. Pine-oil and phenol combinations are very often used, but their continued use is very often questioned. In place of high-smelling disinfectants, the use of a good soap solution will usually suffice.

DUSTING:

"Dusting" of cement and terrazzo floors is caused by the loose cement's coming to the top and is considered the same as "blooming." To overcome this, a floor hardener or sealer is necessary.

FLOOR SEALERS:

Floor sealers are made up of materials used in the manufacture of varnish; in fact, many sealers are made up of varnishes that have been reduced with turpentine, Varsol, or other solvents.

FUSIBLE PLUGS:

These are generally placed in the rear tube sheet of a boiler at the water level; they have a hole drilled in them, which is filled with pure tin or some other soft metal which will melt at about 600° fahrenheit and let pressure blow off. This lessens the danger of a boiler explosion.

GALVANIZED:

Iron and steel coated with (dipped in) zinc to prevent rusting.

INFLAMMABLE:

Also called flammable, combustible, readily inflamed, easily set on fire, apt to catch fire.

LINOLEUM AND LINOLEUM TILE:

Floor covering made of solidified linseed oil, gums, cork dust or wood flour or both, and pigments, pressed on a burlap or canvas backing.

PLUMBER'S FRIEND:

A rubber cup about 4 inches wide at bottom, tapering to about 1¼ inch at neck which has female threads, into which a threaded handle about 3 feet long is inserted. For use in dislodging obstructions in toilet bowls and drains by suction.

P.S.I.:

Pounds (of pressure) per square inch.

PUNCHING BOILER TUBES:

This term is very often used when referring to the removal of soot, fly ash, and rust from boiler tubes by means of a stiff wire brush and/or scraper, equipped with a long pipe or rod in order to go to the full length of the boiler tube.

RESILIENT FLOORS:

Linoleum carpet, linoleum tile, cork tile, cork composition tile, rubber sheeting, rubber tile, asphalt tile and vinyl tile are all considered resilient floors in that they "give under pressure" and resume (more or less) their original state when the pressure is removed.

R.P.M.:

Revolutions per minute.

RUBBER TILE:

Floor tile generally made from natural, synthetic, and reclaimed rubber, inert materials and color pigments. Floors of rubber tile should be washed with a neutral cleaner solution or with a mild synthetic detergent and waxed with water-emulsion wax, applied with applicator and buffed in usual manner.

SOAPS:

Alkaline soaps contain trisodium phosphate, ash, soda, water glass, and other similar substances. These are builder materials which increase the detergent action. Alkaline soaps may contain up to about 11 percent builder. They should not be used on asphalt tile or linoleum. *Neutral soaps* are mild, since they contain only about 1 percent builder. They may be

used on floor surfaces, oil-base painted surfaces, and most fabrics. *Oil soaps* are paste soaps made from vegetable oils and caustic potash. Most oil soaps have as their basis linseed oil, soyabean oil, or corn oil. Oil soaps may, as a rule, be used on most surfaces.

SOLVENTS:

Solvents are mostly hydrocarbons; they are used for dissolving certain substances, such as wax, paint, lacquers, etc. Among the solvents are: Kerosene, Varsol, turpentine, gasoline, benzine, and acetone. (Soap and water are also considered to be solvents in a broader sense.)

SPONTANEOUS COMBUSTION:

Outbreak of fire in combustible material that occurs through chemical action rather than by the application of direct flame; it usually is the result of oxidation of substances such as linseed oil on materials such as wadded cloths.

RUBBER SQUEEGEE:

Floor squeegees are generally about 16 or 18 inches in length, and come in curved or flat types; they have slots for renewal of rubber blades and are equipped with handles 5 or 6 feet long. They are used to pull water on the floor to where it can be picked up by pan or vacuum pickup.

WINDOW SQUEEGEE:

Window squeegees are made of a metal frame 10 to 18 inches in length with a slot in the bottom part for replacement of rubber blades. They may have a short handle or a long wooden handle.

SWIVEL WHEELS:

Wheels on chairs, trucks, or carts that turn freely, as opposed to wheels that remain firm.

TERRAZZO FLOORS:

Terrazzo is a composition of about 70 percent marble chips and about 30 percent portland cement matrix, ground down to a smooth finish. Since the cement has some pores and absorbs a certain amount of oil- or water-based stains, terrazzo floors should have a penetrating seal applied as soon as possible after laying.

TOILET AUGER:

A flexible wire rod (snake) used for the dislodging of obstructions in urinals, sinks, toilet bowls, and drains.

VINYL TILE FLOORS:

Vinyl tile floors are made from acetylene and hydrochloric acids in combination with other material. They are resistant to ordinary acids and alkalis, and are unaffected by moisture. They may be washed with almost any kind of soap or detergent. Solvent or water-emulsion wax may be used; it is buffed the same as on other tiles.

Note: It should be remembered that in the mopping and scrubbing of all tile floors, a minimum amount of water or solution should be used, and it should not be allowed to remain on the floor for too long a period of time, as it may seep into the ends of the tiles causing them to become loosened. It is recommended that washing areas be limited to about 6 by 20 feet rather than trying to wet the entire area at one time.

WATER COLUMN:

This is a fixture attached to the side of a boiler. A glass gage is part of it, to indicate the water level in the boiler. This should be checked frequently, especially before starting the boiler at the beginning of the shift.

WAXES:

Paste wax comes in both water- and solvent-based types; it is impractical to use it without a floor machine.

Water-emulsion wax has a water base; it is considered the safest type to use on any type of floor. Although most brands of this type of wax are self-polishing, the use of a buffing machine is highly desirable.

Solvent wax has a solvent base and is considered in some cases to be a fire hazard. Under certain conditions it may cause the floor tile to fade out or the colors to blend.

Bibliography

American Society of Heating and Ventilating Engineers. *Heating, Ventilating, and Air-Conditioning Guide.* New York, N.Y.: 38th ed., 1965.

Arco Civil Service Examination. Series. *Janitor: Custodian,* No. 13. New York, N.Y.: Arco Publishing Co., 1961.

———. *Maintenance Man,* No. 113. New York, N.Y.: ARCO Publishing Co., 1961.

———. *Stationary Engineer and Fireman,* No. 70. New York, N.Y.: Arco Publishing Co., 1965.

Baker, Joseph F., and J. S. Peters. *School Maintenance and Operation.* Danville, Ill.: The Interstate, 1963.

Brainard, Alanson D. *Handbook for School Custodians.* Lincoln, Nebr.: University of Nebraska Press, 1961.

Clark, Bill. *Professional Cleaning and Building Maintenance.* New York, N.Y.: Exposition Press, 1963.

McEntee, John J., and Edward J. Wolfe. *The Job Book for the Building Sanitation Attendant.* Philadelphia, Pa.: Offset Service, 1964.

Montclair, Board of Education. *Operational Handbook for Custodial and Maintenance Employees.* Montclair N.J.: 1962.

National Board of Fire Underwriters, Fire Insurance Rating Bureau. *Standard of the National Board of Fire Underwriters N.B.F.O. #10* Newark, N.J.: 1962.

Ohio State University, Trade and Industrial Education Service, Instructional Materials Laboratory. *Custodial Training.* Columbus, Ohio: 1962.

Oklahoma State University, Trade and Industrial Division. *The Principles of Science, Applied to the Problems of School Custodians.* Stillwater, Okla.: 1963.

Painting and Decorating Contractors of America. *Painting and Decorating Craftsman Manual and Textbook.* Chicago, Ill.: 1965.

Sack, Thomas F. *A Complete Guide to Building and Plant Maintenance.* Englewood Cliffs, N.J.: Prentice-Hall, 1963.

U.S. Department of Health, Education, and Welfare, Office of Education. *School Building Maintenance Procedure.* Washington, D.C.: U.S. Government Printing Office, 1964.

Appendixes

Appendix A

SUGGESTED WORKLOADS AND SAMPLES OF INDIVIDUAL WORK SCHEDULES OF CUSTODIANS

Workloads

Many attempts have been made by various authorities to arrive at a fair workload for building custodians. The criteria include:

Square footage.
Number of persons using building.
Combinations—interior footage plus outside acreage and number of rooms.

It is generally accepted that where the square footage of building and grounds are the guiding factors in determining the number of custodial personnel required, the ratio should be one man for each 12,000 square feet, and one man for each 2 acres of ground.

Individual Work Schedules of Custodians

Custodian

Hours: 7 a.m. to 4 p.m.

7:00	to	7:30	Put lights on, first floor: open toilets.
7:30	to	8:30	Dust rooms Nos. 111, 112, 113, 114, and 115.
8:30	to	8:45	Clean drinking fountains, north wing.
8:45	to	9:30	Sweep north wing corridor and corridor around auditorium.
9:30	to	10:00	Sweep auditorium stairway entrance.
10:00	to	11:15	Take care of requests, check building.
11:15	to	12:15	Lunch.
12:15	to	1:15	Give out supplies; make out orders.
1:15	to	2:15	Give a hand to other men such as those cleaning the outside of the building or the auditorium, or moving furniture.
2:15	to	2:50	Help with cafeteria sweeping and mopping.
2:50	to	4:00	Sweep bridge and balcony stairs; clean men teachers' toilet, north wing; lock entrance doors; set up light switches in panel boxes.

Custodial Maid

Hours: 7 a.m. to 4 p.m.

7:00	to	8:00	Open office; dust all offices including principal's and vice principal's, main office, four guidance offices, conference room; vacuum rugs in principal's office, conference room; clean toilet in principal's office.
8:00	to	9:00	Health office (four rooms) and one toilet; dust and clean toilet.
9:00	to	10:00	Girls' toilet, north wing, first floor; teachers' toilet, north wing, first floor.

10:00 to 11:00 Girls' toilet, east wing, second floor; girls' toilet, east wing, third floor.
11:00 to 12:00 Lunch.
12:00 to 1:00 Clean glass in main office, library; classroom doors.
1:00 to 1:30 Check toilets; clean library sink.
1:30 to 2:45 Girls' toilet in girls' locker room; clean shower room; clean toilet in girls' physical education office.
2:45 to 4:00 Clean rooms Nos. 111, 112, 113, 114, and 115.

Custodial Fireman

Monday to Friday 6:30 a.m. to 3:30 p.m.
Saturday 7:00 a.m. to 11:00 a.m.
Sunday 1 hour.

Provide heat, keep all equipment in proper working condition.
Clean filters, oil and grease equipment called for.
Burn trash, sweep boys' locker room, shower room, and offices.
Put out trash for collections, Wednesday and Saturday.
Keep delivery entrance clean and in orderly condition.
Replace burned-out bulbs and fluorescent tubes in north wing.
Put out garbage on Wednesdays.
Clean out incinerator.

11:30 to 12:30 Lunch.
12:30 to 1:45 Check heating plant, do whatever work is required, order oil by calling supply department.
1:45 to 2:30 Help with sweeping of cafeteria, and clean stains on tile floor.
2:30 to 3:15 Sweep out rooms Nos. 116, 117, and rehearsal room.
3:15 to 3:30 Check boilerroom and lock up.

Custodial Worker

Hours: 8 a.m. to 5 p.m.

8:00 to 8:15 Put lights on, second and third floors.
8:15 to 9:15 Sweep two stairways leading to basement corridor, also basement corridor and teachers' activity room, visual-aid room, switchboard room, and bookroom.
9:15 to 9:30 Clean washbasins in shops (three).
9:30 to 10:30 Sweep third floor corridor; sweep stairways B and D.
10:30 to 11:00 Clean and mop two boys' toilets, third floor; replenish supplies in toilets.
11:00 to 11:30 Clean drinking fountains.
11:30 to 12:30 Lunch.
12:30 to 1:15 Sweep balcony—Tuesday and Friday; sweep auditorium—Monday and Thursday; stage and dressing rooms—Wednesday.
1:15 to 2:15 Sweep outside school building and driveway by cafeteria and patio.
2:15 to 2:45 Sweep cafeteria and mop tile floor where necessary.
2:45 to 5:00 Sweep and dust rooms Nos. 206 to 215 inclusive (10 rooms), and teachers' rooms; empty trash receptacles; close and lock windows on bridge; clean supply stockroom in main office on Fridays.

Custodial Worker

Hours: 7 a.m. to 4 p.m.

7:00	to	7:15	Put up flag; unlock entrance doors on No. 4 stairway.
7:15	to	8:30	Dry mop gymnasium, clean two offices and dust offices; sweep two stairways leading to locker rooms from playground side of gym.
8:30	to	9:00	Sweep second floor corridor.
9:00	to	9:30	Clean boys' toilet, second floor; replenish supplies.
9:30	to	10:00	Clean mens' toilet, second floor; replenish supplies.
10:00	to	11:00	Sweep and dust stairways C and A.
11:00	to	12:00	Lunch.
12:00	to	12:30	Clean drinking fountains, second floor.
12:30	to	1:15	Sweep auditorium, balcony, and dressing rooms.
1:15	to	2:15	Sweep outside of school building.
2:15	to	2:45	Sweep cafeteria and mop tile floors where necessary.
2:45	to	3:50	Sweep and dust rooms Nos. 201 and 205, inclusive (five rooms).
3:50	to	4:00	Bring in flag.

Custodial Worker

Hours: 3 p.m. to 11 p.m.

Sweep and dust rooms Nos. 104, 105, 106, and 107.
One preparation room No. 108.
Library, three offices, guidance office, waiting room, four guidance offices, corridor.
Main office, vice principal's office.
Two toilets, health office, doctor's room, room No. 110.
Clean two toilets in office, mop floor daily.
Clean three toilets—one boys', one girls'—east wing; one boys'—north wing.
Mop hall floors Tuesday and Thursday.
Dry mop east wing corridor.
Sweep and dust stairway No. 4.
Sweep recreation stairway and sweep and dust girls' locker room.
Check all outside doors completely around first floor of building.
Be sure all lights are out and all windows locked.

Custodial Worker

Hours: 3 p.m. to 11 p.m., Monday–Friday.

Sweep and dust rooms Nos. 301 to 320 inclusive (20 classrooms).
Sweep and clean boys' toilets, classrooms Nos. 215 to 220 inclusive (five classrooms).
Sweep out girls' toilet.
Sweep out ladies' toilet.
Sweep and clean men's toilet and teachers' lounge.
Replenish toilet rooms with supplies.
Empty out trash receptacles in corridor every night.
Dry mop corridor.
Remove stains on tile.
Sweep and dust stairway No. 1, which is last stairway by room No. 320.
Remove trash on sills of stairways.
Be sure all windows are locked and lights out.
With first floor man, check first floor outside doors, completely around building.
Check auditorium lights.

Appendix B

SAMPLE LESSON PLAN—HOUSEKEEPING (MANIPULATIVE)

Lesson Plan No. _____

Title:

Cleaning cafeteria and lunchroom.

Objectives:

To develop a knowledge of the importance of careful cleaning and sweeping methods to insure proper cleanliness in premises where food is served, to promote proper sanitary conditions and control vermin.

Tools, Equipment, and Supplies:

Pail (with clean water)
Wiping cloth
Handbrush
Dustpan
Putty knife
Sweeping compound
Floor broom
Container for sweepings
Container for wastepaper

Preparation:

Special care should be taken to remove all remains of lunches, food scraps, crumbs, etc., when cleaning furniture and sweeping floors in cafeterias or lunchrooms.

After each lunch period, tabletops should be wiped off with a damp cloth. They should be scrubbed at frequent intervals with soap and water. Chair seats should be brushed off after the tabletops are cleaned.

Cafeteria floors require more frequent scrubbing and mopping than the floors in other parts of the building, with the exception of toilet rooms.

Presentation: Cleaning Tables and Chairs

Operations or steps	*Key points*
1. Starting with 1st row of tables, brush off the 1st tabletop.	Work progressively from your left to right facing the table.
2. Brush off chair seats on the "near" side and ends of table.	(Do not brush the chairs on the "off" side of table at this time)
3. Place brushed chairs on tabletop.	Care should be exercised to avoid scraping tabletop.
4. Repeat steps 1, 2, and 3 on each table in 1st row.	
5. Brush off 1st table in 2d row	Move progressively to tables 1, 2, 3, etc., in each row.
6. Brush off chair on the "near" side and ends of table ...	Do.
7. Brush off chairs on the "off" side of the table in the 1st row.	Do.
8. Place brushed chairs on table.....	Do.
9. Repeat steps 5, 6, 7, and 8 on each table and chair in the 3d and 2d rows.	
10. Repeat procedure on each row until all tables and chairs have been brushed and chairs "stacked" on tables.	

Sweeping Floors

Operations or steps	*Key points*
11. Scatter sweeping compound in 1st aisle at end of room.	Scatter sweeping compound lightly on floor.
12. Sweep aisle and under tables, pushing sweepings under tables to 2d aisle.	Use putty knife to remove chewing gum from floor as sweeping progresses.
13. Move table slightly for "finishing touch" by sweeping access spots where table legs have stood.	When completed push tables back in place.
14. Repeat sweeping operations through each aisle until all sweepings are in the last aisle.	
15. Sweep accumulation in last aisle into a pile.	
16. Pick out wastepaper from sweepings.....	Place wastepaper in wastepaper container.
17. Place sweepings in container using dustpan and handbrush.	Place sweepings in sweepings container.
18. Remove all chairs from tabletops and place in proper position.	Begin at tables on last aisle and work toward front of room.
19. Wipe off tabletops with damp cloth	Rinse cloth frequently and squeeze out excess water.

Application:

After the operations or steps are discussed thoroughly with the group, the instructor should demonstrate the method of cleaning with one table and a section of the floor. During the demonstration, the students observe and ask questions. Each student is then assigned a section of the room to clean.

Testing and Questions:

The testing procedure employed in this lesson will be "observation of the results of performance" by students examining the finished work of other students as assigned.

The following questions may be used either during or after the demonstration:

Why is special care required in cleaning and sweeping cafeterias and lunchrooms?
Is it good practice to stack chairs on a table where food is served? Why?
Why should table wiping be left to the last?

Appendix C

SUGGESTED LIST OF EQUIPMENT

Quantity	*Description*	*Approximate*[1] *unit cost*	*Approximate total cost*
3	Scrubbing and waxing machines, 16-in. combination, complete with scrubbing, polishing, and wire brushes.	$300.00	$900.00
2	Mop trucks, combination 2 30-gal. sections complete with wringers, rubber bumper guards, and drain cocks.	225.00	450.00
3	Wet and dry vacuum cleaners, with wet and dry equipment, hose, squeegee, and dust pickup tool.	250.00	750.00
4	Plumber's toilet augers, with 10-ft. flexible snakes, stainless steel preferred (nonrust).	30.00	120.00
2	Stepladders, 6-ft.	9.00	18.00
2	Stepladders, 10-ft	12.00	24.00
2	Ladders, window cleaner's, 6-ft. bottom section	6.50	13.00
2	Ladders, window cleaner's 6-ft. middle section	6.50	13.00
1	Ladder, extension, 24-ft	23.00	23.00
2	Ladders, window cleaner's, 8-ft. top section	8.50	17.00
2	Service carts, with canvas bags, 2 stationary and 2 swivel rubber-tired wheels, with space for carrying tools, pails, brooms, and other cleaning material.	60.00	120.00
2	Dustboxes, galvanized for carrying sweepings, dustpan, and counter dustbrush.	15.00	30.00
2	Storage cabinet, steel, 2-door, approximately 20 in. deep, 43 in. wide, and 78 in. high, with shelves.	35.00	70.00
1	Handtruck, aluminum or magnesium 2-wheel, rubber-tired wheels and stair climber (bow handle preferred).	28.00	28.00
1	Boiler vacuum cleaner, combination, with attachments to fit on 55-gal. drum (with 1 head removed).	450.00	450.00
1	Lawnmower, hand, 17-in., reel-type	25.00	25.00
1	Lawnmower, power, 17-in., rotary-type	50.00	50.00
1	Sprayer, 2-gal., insecticide; include spraying nozzle	25.00	25.00
6	Ashcans, 16¾-in. by 26¾-in	5.00	30.00
6	Ashcans, 18¾-in. by 24⅞-in	3.00	18.00
1	Carpet sweeper	8.50	8.50
4	Pails, galvanized, 12-qt. size	.93	3.72
4	Pails, galvanized, 14-qt. size	1.03	4.12
4	Pails, 18½-qt. size, w/wringer, w/casters	4.29	17.16
2	Plumber's friend, 4½-in. rubber, 24-in. handle	.50	1.00
2	Mop wringers, 7½- by 7-in	6.20	12.40
2	Mop wringers, 9- by 9½-in	14.40	28.80
1	Window bracket	34.00	34.00
3	Garbage cans, 10-gal., with cover	3.50	10.50
2	Grass whips	1.25	2.50

[1] Costs in apps. C, D, and E were estimated in 1966.

Appendix D

SUGGESTED LIST OF TOOLS

Quantity	*Description*	*Approximate[1] unit cost*	*Approximate total cost*
12	Lamb's wool applicators, 12-in., complete w/handle	$1.30	$15.60
12	Lamb's wool applicators, 18-in., complete w/handle	1.75	21.00
2	Braces, ratchet, 10-in	4.50	9.00
3	Bits, screwdriver, ⅜-in	.60	1.80
2	Bits, drill, ⅜-in	.70	1.40
2	Bits, drill, ⅝-in	.70	1.40
3	Brooms, whisk (for upholstery)	.60	1.80
8	Brushes, dust, 8-in	.50	4.00
3	Brushes, scrub, deck, 2¾- by 10-in., w/handle	.60	1.80
2	Brushes, 3-in. flue, wire steel, for use on boiler tubes	.75	1.50
2	Brushes, 3½-in. flue, wire steel, for use on boiler tubes	.75	1.50
2	Brushes, 4-in. flue, wire steel, for use on boiler tubes	.75	1.50
1	Scraper, boiler-tube, adjustable	10.00	10.00
2	Cans, oil, 1-pt. capacity, bent spout	.90	1.80
2	Cans, oil, ½-pt. capacity, flexible spout, 4-in	.65	1.30
2	Sprayers, polishing oil, 1-qt. size	1.44	2.88
10	Knives, putty, 2-in. blade	.65	6.50
1	Screwdriver, 4-in. shank	.90	.90
1	Screwdriver, 8-in. shank	1.39	1.39
1	Screwdriver, 4-in. shank, phillips head	.50	.50
2	Squeegees, window, 12-in., brass	1.25	2.50
2	Squeegees, window, 18-in., brass	1.50	3.00
2	Chisels, cold, 1- by 8½-in	.78	1.56
2	Chisels, cold ⅜- by 6-in	.41	.82
10	Pans, dust, 8½- by 12¼-in	.45	4.50
1	Bulb changer, electric, with 2 5-ft. extensions	8.00	8.00
2	Pans, pickup, and squeegees	17.85	35.70
2	Hammers, machinists', 16-oz	2.07	4.14
2	Hammers, claw, 13-oz	2.07	4.14
12	Handles, floor broom, 6-ft.-long	.35	4.20
2	Measures, 1-qt., with funnel lip	.40	.80
6	Handles, mop, steel, for 24-oz. mops	1.30	7.80
6	Handles, mop, steel, for 12-oz. mops	.90	5.40
12	Mops, wick, 1½-lb., w/o handles	.90	10.80
12	Mops, wick, 12-oz., w/o handles	.50	6.00
2	Pliers, wire-cutting, 7½-in. =long	1.80	3.60

See footnote at end of table.

Appendix E

SUGGESTED LIST OF SUPPLIES

Quantity	*Description*	*Approximate[1] unit cost*	*Approximate total cost*
35 qts	Ammonia, 26°	$0.25	$8.75
6	Brooms, corn, 3-lb. each, No. 8	1.20	7.20
3	Brooms, push, floor, 12-in., w/handle	7.00	21.00
3	Brooms, push, floor, 18-in., hair, w/handle	10.00	30.00
3	Brooms, push, floor, 24-in., hair, w/handle	13.00	39.00
4	Brooms, push, bass fiber, 4-in., out of block, 16- by 3½-in., for use outdoors and on rough concrete floors.	1.60	6.40
12	Brushes, radiator, 24-in.-long	.44	5.28
6	Brushes, hand scrub, 2¾- by 10½-in	.50	3.00
12	Brushes, toilet, wood handle	.40	4.80
12	Brushes, toilet, wood handle, 16-in., with metal ferrule	.40	4.80
6	Brushes, window, 4½-in. diameter, 6-ft. handle	1.50	9.00
12	Chamois skins (synthetic) 17- by 23-in	1.50	18.00
12	Applicator, skins, lamb's wool, 12- by 5¾-in	.50	6.00
12	Applicator, skins, lamb's wool, 18- by 5¾-in	.90	10.80
20 gal	Dressing, mop	2.60	52.00
36	Pads, steel wool, braided No. 2 for 16-in. brush	.90	32.40
4 cases	Pads, stripping, 16-in. (10 per case)	10.00	40.00
4 cases	Pads, scrubbing, 16-in. (10 per case)	10.00	40.00
3 cases	Pads, polishing, 16-in. (10 per case)	10.00	30.00
10 gal	Oil, polishing	1.50	15.00
10 qts	Polish, furniture	.85	8.50
10 gal	Wax, floor, water emulsion	3.65	36.50
18 packages	Cheesecloth, unbleached (10-yd. packages)	.45	8.10
4 packages	Soap pellets (or powdered soap) (25-lb. package)	4.00	16.00
4 packages	Sal-soda, powdered (soda-ash) (25-lb. package)	1.40	5.60
4 packages	Trisodium phosphate (25-lb. package)	2.35	9.40
10 packages	Detergent (5-lb. package)	1.60	16.00
96	Scouring powder (1-lb. cans)	.15	14.40
20 gal	Soap, hand liquid for dispensers, 1-gal. cans	.70	14.00
25	Soap, borax cakes	.07	1.75
100	Soap, hand, cakes, 1- by 2- by 3-in	.05	5.00
10 gal	Disinfectant	1.00	10.00
10 gal	Penetrating sealer, wood floors (1-gal. cans)	3.90	39.00
10 gal	Surface sealer, wood floors	4.00	40.00
10 gal	Terrazzo sealer, clear (1-gal. cans)	4.50	45.00
18	Polish, metal, 1-qt. cans	.53	9.54

[1] Costs in apps. C, D, and E were estimated in 1966.

U.S. GOVERNMENT PRINTING OFFICE: 1969